Project Proposal - **Game Programming Lab '07**

Group members: Benjamin Schindler, Basil Fierz, Henning Avenhaus
Proposal „Gravity bound"

Summary:
The game is a very arcarde-style game loosely oriented on the old arcarde game „Bubble Bobble".
It is about a heroic drop of oil, termed „blob" for convenience. This blob lives in a three-dimensional cubic world of its own, together with some monsters. It can move around, jump, and maybe even stick to walls and such.
The blob has to fight the monsters by emitting traces of oil from itself. As it does so, the amout of oil left in its own body reduces, thus it shrinks. If it has emitted too much oil, it will not be possible to emit any more oil, and the blob will have to move around in the level to recollect the traces of oil it has spit out.
If traces of oil hit the enemies, they are paralyzed. The blob can then move to them and kill them completely. If a non-paralyzed enemy comes in contact with the blob, the blob dies (looses one life).
If all enemies in one level are killed, the game moves on to the next level.
The cubic world can be tilted around by angles of 90 degrees in every direction, which effectively changes the direction of gravity. Whether it will be possible for the player to do this or whether the levels will do it themselves at certain intervals or at random is not clear yet.
There will be bonus items.
If possible, a multiplayer split-screen possibility will be added, which makes life more complicated since you can even collect the oil traces of the other player (and get a nice mixed color, given that the blobs have different colors.....).
Whether Multiplayer is mainly cooperative or a competition relies heavily on the implementation of the Gravity feature.

Technical Issues:
Crucial for our game will be the collision detection. This is needed for the blob, the monsters, and bonus items that might pop up. The blob itself might be done using a mass-spring model or FEM to make it more wobbly.
The surface of the blob will ideally be shiny and reflective (specular phong lighting and environt mapping).
Fancy illumination effects are not needed for this game, because it shall be more arcarde-style and also look like that.

Backgrounds:
Benjamin Schindler
Semester: 8
Course of studies: Informatics, Visual Computing Track A
Courses taken: Introduction to Computer Graphics, Physically based Simulations in Computer Graphics, Visual Computing (core subject)

Basil Fierz
Semester: 7
Course of studies: Informatics, Visual Computing Track A
Courses taken: Graphische Datenverarbeitung I, Visual Computing (core subject)

Henning Avenhaus
Semester: 8
Course of studies: Computer Science and Engineering
Courses taken: Graphische Datenverarbeitung I, Physically based Simulations in
Computer Graphics

Who does what:
Benjamin:
Will be the one to beat if the sound does not work or just sounds ugly. Also:
Collision detection

Basil:
Responsible for graphics / rendering

Henning:
Physics, Level Design

Development Schedule
First week:
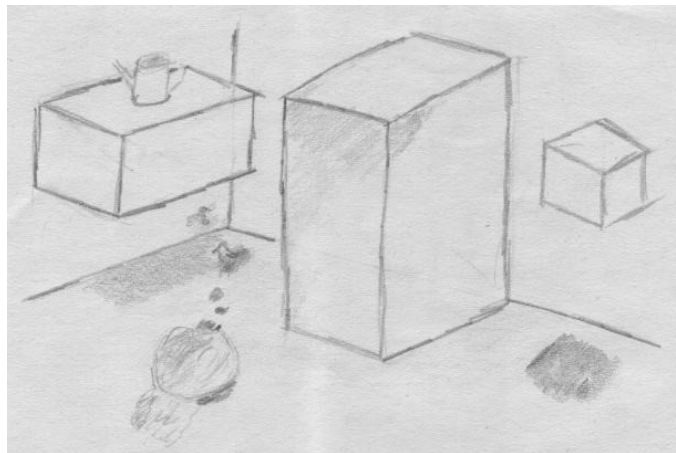- Basic graphics framework, collision detection framework, level loader

2nd + 3rd week:
- Game logic+scoring system, basic sound system, some more levels

4th week (Alpha release):
- Wobbly blob,gravity feature, more advanced sound and graphics,
  additional items

Mockup

Minimum requirements:
Blob as a sphere that can move, monsters that can be shot, oil that can be recollected. Basic scoring system. Collision detection with surroundings and also with other monsters so that the blob can die. Basic sounds.

Standard requirements:
Blob that is wobbly and can move around. Bonus items. World that can be tilted in 90 degree angles. Several different levels. Sound that fits the game.

Advanced requirements:
Advanced objects like trampolins. Advanced movement capabilities (stick, glide) for the blob. Rebound for the blob on releas of shots. Shiny surface with environment mapping. Multiplayer via splitscreen. Nice menus. Advanced sound, background music.

In our dreams:
Mirrors in the level. Tons of levels and monsters. Special effects. Holes in the ground where you can fall through and re-enter the scene from the top. Teleporters. Different gravity for different players in multiplayer. Intelligent monsters. 3D sound rendering.